

THE AIR FORCE ROLE IN NATIONAL SECURITY

Mr. Chairman, members of the committee, 1997 was a defining year for US defense policy. Together, the Quadrennial Defense Review (QDR) and the independent analysis by the National Defense Panel (NDP) significantly raised the level of defense debate. Each of these undertakings will undoubtedly have far-reaching defense policy implications. We are proud of our Service's contributions to these efforts.

THE QUADRENNIAL DEFENSE REVIEW

One of the most significant outcomes of the QDR was the emergence of a new national military strategy. That strategy includes a new special emphasis on the critical importance of an early, decisive halt to armed aggression to provide wider options for the use of military force and to create a window for diplomatic resolution of a crisis. This new strategy is also reflected in the President's *National Security Strategy*, the Secretary of Defense's *Defense Planning Guidance*, and the latest edition of the Chairman of the Joint Chiefs of Staff's *National Military Strategy*. It is heavily dependent on the speed, range, agility, and overwhelming firepower of aerospace forces.

One of the greatest strengths of aerospace forces lies in their ability to project lethality with less vulnerability. With the advance of technology, a more agile aerospace force can substitute for large, slow-arriving forces and deliver more firepower in the process. This capability minimizes the number of friendly casualties, helps to solidify political support for military action, both at home and abroad, and buys critical time for diplomatic initiatives and potential follow-on military actions. This rapid halt capability also minimizes the amount of territory that would have to be retaken should a counteroffensive be necessary. We firmly believe this strategy to be appropriate, cost-effective, and consistent with American values.

Another important aspect of the QDR was the reaffirmation of the importance of the total force. We embrace the total force concept--we depend on it. Air National Guard and Air Force Reserve forces provide the necessary wherewithal for our Service to effectively accomplish its entire range of military missions.

We are implementing a balanced, time-phased modernization program to build the force necessary to meet the requirements of the QDR strategy and enable the successful conduct of joint warfare in the 21st century. To help fund this modernization, we are taking steps to achieve personnel, business, and force structure efficiencies. The QDR reminded each of the Services that in fitting our force structure to future needs, we must make hard, but necessary recommendations on infrastructure. We will need the support of the Congress to implement these recommendations. Dollars saved through these actions will be invested in Air Force modernization, providing the nation with a force fully prepared for the increasingly complex and diverse security challenges of the future.

THE REPORT OF THE NATIONAL DEFENSE PANEL

The National Defense Panel articulated several desired military capabilities to meet their postulated future national security challenges. Many of these capabilities are present in today's Air Force, or will be in the aerospace force planned for the future. For example, the panel recognized the imperative to achieve air superiority against an enemy's air-to-air, surface-to-air, ballistic and cruise missile threats. We are fielding the F-22 and the Airborne Laser to address this need.

The Panel also observed that projecting military power on short notice into the backyard of a major regional power demands forces that can deploy rapidly, seize the initiative, and achieve national objectives with minimal risk of

heavy casualties. Aerospace forces possess these capabilities. We believe they will be increasingly called upon in the future.

The NDP recommended an increased emphasis on information systems (including situational awareness) and information operations; a migration to unmanned and space-based systems; a lighter, more mobile force; and greater emphasis on precision, speed, stealth, and long range strike. The Air Force program stands up well when measured against this template because our corporate vision statement--*Global Engagement: A Vision for the 21st Century Air Force*--articulates the importance of many of these same priorities.

GLOBAL ENGAGEMENT

Global Engagement addresses the range of Air Force activities--operations, infrastructure, and personnel--to provide a comprehensive map to shape the Air Force during the first quarter of the 21st century. It defines the Air Force core competencies which stem from the speed, global range, precision, flexibility, unparalleled access, and awareness afforded by aerospace forces--competencies that contribute to the Chairman of the Joint Chiefs of Staff's *Joint Vision 2010* goal of *Full Spectrum Dominance*. *Global Engagement* establishes the vector our Service will follow into the 21st century. The guidance provided by *Global Engagement*, in conjunction with our long range planning efforts, form the prism through which we view our near-, mid-, and far-term priorities.

The priorities outlined herein represent our three-fold commitment: first, to maintain a ready and capable force to conduct our contemporary military mission; second, to size, shape, and streamline our Service to implement QDR guidance; and third, to continue the evolution of our aerospace force to provide the capabilities necessary to protect America's security interests into the next millennium.

CONTEMPORARY AIR FORCE OPERATIONS

READINESS

The Air Force is expected to maintain a high state of responsive readiness across the force due to the critical need to get aerospace power rapidly to any crisis. During peacetime, high readiness gives us the flexibility to deploy a tailored force anywhere in the world in response to emerging crises—to gather essential intelligence, deter potential enemies, protect friendly forces and US citizens, apply force, or provide humanitarian aid. Airlift, tanker, fighter, bomber, space, communications, reconnaissance, intelligence, and many other Air Force units are also the first forces called upon in wartime. Aerospace power is vital to rapidly halt advancing enemy forces, and critical to the success of a Commander in Chief's (CINC) extended campaign plan.

We judge readiness through objective and subjective assessment of several interdependent elements which include personnel, equipment, training, logistics, and financial resources. A shortfall in any of these areas will negatively impact our overall readiness level. Maintaining high readiness in today's environment poses the challenge of balancing present requirements with the need to acquire new technologies and modernize current systems for the future.

Since 1986, the Air Force has downsized by nearly 40 percent, while military operations other than war have greatly increased. In 1989, our Service averaged 3,400 personnel deployed daily for contingencies and exercises. Since the conclusion of the Gulf War, that average has grown over fourfold to 14,600 in FY97. For the foreseeable future, aerospace forces are likely to remain in high demand.

We have taken several steps as a Service to mitigate the effects of our high TEMPO, such as reducing deployment lengths, reducing the number of

headquarters inspections of units, and instituting standdowns after lengthy deployments. Additionally, we have introduced the use of a TEMPO tracking system and associated metrics to better manage the TEMPO of our airmen. This tool gives us an accurate way to identify and address TEMPO problems before they occur.

While 91 percent of our active and Air Reserve Component units are maintaining good readiness levels, caution indicators have surfaced in some areas—most notably, pilot and navigator retention have decreased markedly, some critical second-term reenlistment rates are declining, and we are dealing with some serious engine and spare shortages. We are taking steps to address each of these readiness challenges.

Today, our Air Force remains the best in the world and ready to answer the nation's call. The pace of current operations has required our people to work harder, smarter, and longer hours to maintain our readiness and they have risen to the challenge. However, the combination of several eroding trends have peaked our concern regarding current and future readiness...working harder, smarter, and longer is not enough. We will continue to pursue a family of initiatives to protect Air Force readiness...our contract with the CINCs.

OPERATIONAL RISK MANAGEMENT

Maintaining our combat edge depends on our ability to train realistically and safely. This involves accepting, but managing risk. FY97 was the second safest year in our history in the categories of ground fatalities, Class A flight mishaps, and flight fatalities. We are working to keep these numbers low by continuing to make mishap prevention an integral part of the mission by emphasizing Operational Risk Management (ORM).

ORM is key to maintaining readiness in peacetime, dominance in combat, and a crucial component for force protection. It is a decision-making tool to systematically identify risks and benefits and help determine the best courses of action for any given situation. ORM is designed to enhance mission effectiveness by minimizing risks in order to reduce mishaps, preserve assets, and safeguard the health and welfare of our people. Although historically our Service has been very successful in executing its mission with minimum losses, there is still room for improvement both in terms of mission accomplishment and mishap prevention as our low mishap rates have "plateaued." This fact reinforced our decision to implement the ORM process Air Force-wide.

Proper application of the ORM process and tools will minimize all dimensions of risk and reduce mishap rates without compromising mission objectives. We are emphasizing ORM in multiple educational programs and have initiated formal education and computer-based training to instruct our people in the use of ORM. All Air Force personnel should receive this training by 1 October 1998.

THE TOTAL FORCE

Today, more than ever, the Air Force relies on its total force--Active Duty, Air National Guard, and Air Force Reserve working together to meet today's peacekeeping and wartime commitments. The total force was used extensively during 1997 as Air National Guard and Air Force Reserve forces participated in every major deployment and contingency tasking. This trend will continue as Guard and Reserve forces play an increasing role in a variety of worldwide operations.

Air National Guard and Air Force Reserve aircrew members serve an average of 110 days a year in uniform. During 1997, an average of 6,000 Guard members and Reservists were deployed each month to support exercises, contingencies, and military operations around the world. On a

volunteer basis, members of the Air Reserve Component deploy on a rotational schedule, helping to reduce active duty TEMPO without jeopardizing their civilian employment

In some cases, the Guard and Reserve are paired together to provide extended support to the active force. An example of a joint Guard and Reserve mission is the 24 July to 25 October 1997 deployment to perform sustainment airlift from Ramstein Air Base, Germany, to the forces in the Balkans. Other major deployments in 1997 included the deployment of security forces to Saudi Arabia; the deployment of civil engineers, firefighters, and Air National Guard air traffic controllers to Taszar, Hungary, as part of Operation JOINT GUARD; the use of KC-135s to refuel fighter aircraft enforcing the no-fly zone over Bosnia; and the use of F-15s and F-16s to enforce the no-fly zone over Northern Iraq, as well as the use of rescue crews to provide combat rescue support for those forces. The Air National Guard and Air Force Reserve also participated in over 60 exercises worldwide.

In addition to officially becoming a major command on 17 February 1997, the Air Force Reserve expanded its missions in several areas. For example, in January 1997, an associate undergraduate pilot training program was initiated at Columbus AFB, Mississippi, and Vance AFB, Oklahoma. This program employs full-time and part-time Reserve airmen as instructor pilots to offset a shortfall in active duty instructors. The Reserve is also conducting a three year study to determine the feasibility of integrating Reserve pilots and maintenance personnel into active duty fighter squadrons.

In May 1997, associate AWACS crews from the Air Force Reserve Command's 513th Air Control Group (ACG) at Tinker AFB, Oklahoma, participated in their first operational deployment--testing the Western European integrated air defense system in exercise CENTRAL ENTERPRISE 97. Since beginning operations in March 1996, 513 ACG personnel have performed

over 2,000 man-days of service, alleviating some of the TEMPO of our active duty crews. These Reservists also prove invaluable at home station by performing various duties such as preparing aircraft for upcoming missions and performing supervisor of flying duties. The associate AWACS Reserve unit also provides a way for the Air Force to retain its investment in highly trained personnel who would otherwise be lost separating from active duty.

In September 1997, the Air Force Reserve Command's 8th Space Operations Squadron (SOPS) and the 310th Space Group were activated at Falcon AFB, Colorado. The 8 SOPS provides near-real time backup support to the primary Defense Meteorological Satellite Program operations conducted by the National Oceanographic and Atmospheric Agency.

In October 1997, the 439th Security Forces Squadron (SFS) at Westover Air Reserve Base, Massachusetts, achieved full operational capability. The Reservists of the 439 SFS augment the 820th Security Forces Group at Lackland AFB, Texas, with a deployable force protection unit.

In 1997, the Air National Guard flew over 3,200 readiness support airlift missions, 700 airborne transport missions, 500 fighter deployment air refueling missions, and performed a variety of other challenging missions. For example, in October 1997, three 153rd Airlift Wing C-130 aircraft, crews, and support personnel from the Wyoming Air National Guard deployed to Jakarta, Indonesia, to fight widespread forest fires. The crews flew hundreds of hours during their 60 day deployment using their specially equipped C-130s to suppress fires over a 3.5 million acre area. During their deployment, the 153rd extinguished more than 70 fires in open forest areas in the face of incredible challenges posed by heavy smoke and extremely dry conditions. This support allowed the Government of Indonesia sufficient time to develop an effective firefighting plan of its own and organize follow-on indigenous and commercial support to battle the remaining fires.

In 1997, we transferred several new missions from the active component to the Air National Guard including the operation of a mobile ground station by the 137th Space Warning Squadron of the Colorado Air National Guard and an increased share of the international military flying training program.

Air National Guard and Air Force Reserve personnel remain an integral part of our total force as they work side by side with active duty airmen to accomplish the Air Force mission.

FORCE PROTECTION

We are committed to taking the necessary steps to protect our people. We have addressed and corrected the deficiencies identified by the Downing Commission and strengthened our force protection posture throughout Southwest Asia. This included the rapid deployment of additional security forces to Saudi Arabia to relocate our people after the Khobar Towers tragedy. These forces assisted with moving airmen from Dhahran to Prince Sultan Air Base in Al Kharj and military and non-combatant personnel from vulnerable facilities in Riyadh to a more secure location outside the city. We have also enhanced our force protection equipment and integrated intelligence assets and are adjusting our doctrine, strategy, policies, and training accordingly. Additionally, we are expanding the scope of our force protection program to address our growing Aerospace Expeditionary Force (AEF) requirements.

In 1997 we established the Air Force Security Forces Center at Lackland AFB, Texas, comprised of the 820th Security Forces Group (SFG) and the Air Force Force Protection Battlelab. The 820 SFG is a rapidly deployable, self-contained unit integrating essential force protection functions provided by security forces, intelligence, Office of Special Investigation, medical, communications, and engineering personnel. This organization provides AEF commanders with the flexibility to tailor a force protection package to meet the needs of their deployed location. Today, squadron-sized security forces units

deploy with each AEF to provide a comprehensive stand-alone security and antiterrorism force protection capability. Equipment like the Tactical Automated Security System, which uses motion and thermal detection capabilities for perimeter defense, is used to enhance installation commanders' force protection situational awareness. In 1997, the 820 SFG deployed three times: twice to Bahrain to support the 366th Air Expeditionary Wing (AEW) and the 347 AEW, and once to Egypt to support the BRIGHT STAR exercise.

The other component of our force protection program is the Force Protection Battlelab. This battlelab is a compact, multi-disciplinary "think tank" chartered to objectively examine force protection concepts to identify and define unmet needs. Once needs are identified, the battlelab searches for creative, near-term solutions through modeling and simulation, changes in training or policy, available or easily modified technology, or possible new uses for existing technology. The Force Protection Battlelab has three ongoing initiatives. The first aims to improve security at the South American ground-based radar sites that support counter-drug operations. The battlelab is exploring new ways to use existing thermal imagers to expand current perimeter monitoring capabilities. The second initiative involves exploring the use of unmanned aerial vehicles to provide defense force commanders with real-time ground situational awareness. The third initiative deals with increasing our ability to detect vehicle explosive devices by using different configurations of existing commercial off-the-shelf detection capabilities.

We will continue to emphasize investments in force protection technology and its applications to provide a safer environment for our airmen as they conduct operations worldwide.

SUSTAINED THEATER OPERATIONS

Since the NATO-led Operation JOINT ENDEAVOR / JOINT GUARD began on 20 December 1995 to maintain the peace between the formerly

warring factions in Bosnia-Herzegovina, we have maintained over 2,900 personnel in direct support of this operation and flown over 4,200 missions--25 percent of the coalition total. Our missions include close air support, combat air patrol, suppression of enemy air defense, air refueling, combat search and rescue, and intelligence collection sorties. We have also deployed space support teams to furnish critical space-based communications, weather, navigation, and missile warning support to the coalition forces.

In Southwest Asia we have deployed over 7,000 personnel since August 1992 and have flown over 110,400 sorties--70 percent of the coalition total--in support of Operation SOUTHERN WATCH to ensure continued Iraqi compliance with the April 1991 United Nations Security Council Resolution (UNSCR) 688.

Similarly, we have deployed over 1,200 personnel and flown over 3,325 sorties--72 percent of the coalition total--in support of Operations PROVIDE COMFORT and NORTHERN WATCH to enforce the no-fly zone over Northern Iraq. Additionally, our space support teams are integrated into the combined air operations center to provide deployed forces with support from our space-based assets.

Southwest Asia continues to be a very volatile region. Our AEFs have proven to be an effective tool to strengthen relations with coalition partners and respond to crises.

AEROSPACE EXPEDITIONARY FORCES

Our Service is exploring and refining concepts of operations and logistics associated with the deployment and employment of AEFs. We tailor AEF employment packages that provide CINCs with the necessary command, control, mission, and support elements to create a desired operational effect within 72 hours of initial notification to employ forces. Our first AEF deployed

in October 1995 to supplement Operation SOUTHERN WATCH. In 1997, we deployed five AEFs for exercises and contingencies. In each case, we created a tailored AEF by combining an appropriate mix of squadron-level units. By varying the mix, an AEF can support a broad range of missions, from humanitarian relief to contingency operations.

In the combat configuration used in Southwest Asia, our AEF can produce 70-80 combat sorties a day and may include bombers employed from a home station or forward operating location. This AEF's portfolio includes air-to-ground, air-to-air, suppression of enemy air defenses, air refueling, and intelligence, surveillance and reconnaissance assets. AEFs provide CINCs with a wide range of airpower options to meet their specific theater needs. Additionally, the AEF's ability to rapidly and decisively project aerospace power into a theater of operations will allow greater flexibility in determining the forward deployed forces necessary to meet a CINC's requirements.

We are institutionalizing this expeditionary mindset within our Service's culture by emphasizing the fundamentals of expeditionary warfare in our exercises and training. This includes rapid crisis response, an ability to operate out of austere bed-down locations with minimum initial support, robust and secure C2 linkages, robust force protection, and rapid, effective employment. In this way, our forces focus their logistics techniques to determine the absolute minimum support required to deploy rapidly and employ immediately upon arrival.

To supplement our field tests, the Air Force AEF Battlelab is exploring several ideas to improve our expeditionary capabilities. One initiative is to demonstrate the use of commercially available equipment to calibrate targeting and sensor systems on multiple aircraft platforms. The current calibration systems are unique to each aircraft, require extensive logistics support, and can only be used in controlled environmental conditions. This battlelab

initiative would use a calibration system common to all aircraft that requires less logistics support, less set up time, and operates under any environmental condition. We conducted a successful field demonstration of this system last year during an AEF deployment and continued to refine our expeditionary capabilities during deployments to Southwest Asia.

In October 1997, the 366 AEW from Mountain Home AFB, Idaho, deployed F-15s, F-16s, B-1 bombers, and KC-135s to Shaikh Isa, Bahrain. During its deployment, the wing flew 444 sorties in support of Operation SOUTHERN WATCH. Later that month, the 347 AEW deployed to the Middle East in response to Saddam Hussein's refusal to comply with United Nations mandated weapons inspections. This AEF deployed on short notice and included F-15s, F-16s, B-1s, KC-135s, and an Army Patriot battery. These forces joined F-117s and B-52s already in theater to provide the CINC with highly flexible airpower options.

Maintaining an internationally recognized ability to deploy rapidly, execute upon arrival, and sustain complex operations will significantly enhance our ability to deter potential adversaries. We currently have the capability to conduct both lethal and non-lethal AEF operations worldwide. For the long-term, we expect AEFs to continue to mature as effective tools for crisis response and cooperative engagement with potential coalition partners.

COOPERATIVE ENGAGEMENT

An expectation that the US military will need to be able to incorporate the military capabilities of friends and Allies makes it essential for us to broaden our relationships with the militaries of other countries. These ties facilitate cooperation with the US when crises arise, whether this be the need for quick overseas basing access, or the need to build a coalition of willing and capable allies. We are committed to cooperative engagement programs and initiatives that increase mutual understanding and enhance interoperability.

During the 1990s, Air Force Special Operations Command (AFSOC) forces conducted over 150 operations in 22 countries, including over 30 exercises in the Pacific and numerous military-to-military training events in Latin America, Africa, and Europe. AFSOC special tactics teams often help train foreign militaries in subjects such as air operations, combat medicine, air traffic control, and airbase defense.

Recently, the focus of our cooperative engagement and stability enhancement efforts have been in our Partnership for Peace (PfP) participation, our Military Contact Program, the Armaments Cooperation Program, and our Security Assistance efforts, which include Foreign Military Sales (FMS) and International Military Education and Training (IMET).

In 1997, our Service participated in over 20 exercises with approximately 25 PfP countries and conducted over 200 focused Military Contact Program events in Europe alone. We maintain 220 agreements under the Armaments Cooperation Program in an effort to encourage the exchange of information with our coalition partners. These involve cooperative research and development, scientist and engineer exchanges, equipment loans, and scientific and technical information exchanges.

Additionally, our FMS program is currently managing over 4,600 active contracts for aircraft, spare parts, munitions, and training totaling over \$107 billion, while the IMET program continues to provide all types of training--from flying training to professional military education. In 1997 over 5,000 foreign military members representing approximately 100 countries received some form of training under the IMET program.

In April 1997, our Service hosted a gathering of the leaders of the world's air forces. Eighty-four air chiefs participated in this "Global Air Chiefs Conference," a truly landmark event. General Peter Deynekin, then Commander of the Russian Air Force, characterized it as one of the most

significant events of the 20th century. The significance of the conference lies in the fact that despite widely differing languages and customs, each of the air chiefs shares an appreciation for the unique capabilities of airpower and for the revolutionary capability that can be achieved when space-based assets can be effectively integrated into aerospace operations.

SPACE OPERATIONS

An ability to conduct missions better from space will certainly benefit all US forces. Space operations figure prominently in our plans for the future. Our joint-use space-based systems are increasingly responsible for the information stream and global awareness that we cannot take for granted. In particular, 1997 saw the Air Force and the National Reconnaissance Office achieve unparalleled levels of cooperation in enhanced space support to theater warfighters and National Intelligence users. Today, it is difficult to contemplate how a significant US military operation could function without integrated space-based support.

That range of support is gradually becoming transparent to the users. Our aircrews rely heavily on intelligence and weather data derived from space systems. The command and control of air, land, and sea forces is melded together with space-based communication. Navstar Global Positioning System (GPS) satellites guide aircraft and weapons precisely to targets and help avoid collateral damage. In the future, near-real time targeting sent from sensors directly into the cockpit will allow us to improve our aircrews' lethality.

1997 was the busiest year thus far for Air Force space operations. Our two major ranges, Vandenberg AFB, California, and Patrick AFB, Florida, conducted 45 successful space and missile launches, including range support and support services for every government and commercial launch of the Space Shuttle, Pegasus, Atlas, Delta, Titan IV, and Athena II boosters. In addition,

our Satellite Control Network maintained a 99.5 percent mission effectiveness rate with over 159,000 satellite contacts.

On 23 February 1997, the first Titan IVB was launched to insert a Defense Support Program (DSP) missile warning satellite into orbit. The Titan IVB's upgraded solid rocket motors give it a 25 percent increase in payload capacity as well as greater reliability. On 7 November 1997 our Service set a new mark with the third successful launch of America's heavy lift Titan IV within a 23 day period, eclipsing the previous record of 65 days set in 1996. The Titan IV has a 95.7 percent success rate since launching the first of 23 mission payloads into space in June 1989.

Despite the failure of a Delta II launch vehicle in January 1997, there was a total of 10 successful Delta launches in 1997. These included the launch of a next-generation GPS satellite in July 1997 to replenish the GPS operational constellation of 24 satellites and ensure that a continuous GPS signal will remain available for precise navigation operations worldwide.

In the area of military satellite communications, MILSTAR satellites are now providing secure, jam-resistant, nuclear-survivable command and control communications to the East Atlantic and European theaters. In Bosnia, the Joint Broadcast System used direct satellite broadcasts to transmit live unmanned aerial vehicle images and other large digital products to theater commanders and supporting forces--dramatically increasing their global situational awareness. Meanwhile, the Global Broadcast Service is progressing toward its first launch in 1998 and will give our forces similar broadcast services worldwide.

Today, without question, space-based capabilities are a vital component that we depend on for the success of joint military operations. Recently, the Air Force, the National Reconnaissance Office, and the Defense Advanced Research Projects Agency, have all agreed to have a joint space-based Moving

Target Indicator demonstration using technology, expertise, and resources from all three. Enhancing space support to the warfighter remains a top priority for our space operators.

MAINTAINING A QUALITY FORCE

People remain our most vital resource. The intense demands placed on our airmen of all ranks as they perform Air Force missions around the world require special individuals who are highly motivated, well trained, and responsibly led.

RECRUITING QUALITY PEOPLE

We are committed to recruiting and retaining the high caliber people necessary to lead our Service into the 21st century. In FY97 we achieved our recruiting goal of 30,200 recruits--99 percent of whom were high school graduates. We were also successful in reenlisting 110 individuals to fill critical specialties who had previously left the Air Force. To date, new enlistment contracts for FY98 are running slightly ahead of our target--but recruiting remains a challenge. Ample opportunity to attend college, a robust economy with low unemployment, military drawdowns, and highly visible US commitments abroad have decreased the pool of interested, qualified potential recruits. Annual youth attitude surveys show the interest of young men in serving in the Air Force has dropped from 17 percent in 1989 and has stabilized at 12 percent. The interest of young women in serving has remained relatively constant (around 7 percent) over the same period; however, we did see a 1 percent drop in FY97.

Despite the fact that we have been able to recruit adequate numbers of personnel, there has been a decrease in the number of enlistees scoring in the

top half on the Armed Forces Qualification Test, down from 88 percent in 1989 to 79 percent today. To address this trend, we have directed our recruiters to concentrate their efforts on the college and college-bound candidates. Additionally, it is becoming increasingly difficult to fill the mechanical, pararescue, and combat control career fields. To improve our success in manning these specialties, we have directed a larger portion of our advertising budget toward the technical market and have raised enlistment bonuses in the most difficult-to-fill skills. Overcoming these recruiting challenges is essential to maintain the caliber of airmen necessary to effectively serve in our technologically sophisticated aerospace force.

DEVELOPING THE AIRMEN OF THE FUTURE

After we recruit and induct young airmen, we invest in their education and training to prepare them for today's demanding operational environments and for future challenges. The high standards of behavior expected of our personnel demand a strong moral and ethical foundation. On 1 January 1997, we published an Air Force Core Values pamphlet. Air Force core values--*integrity first, service before self, and excellence in all we do*--apply to all airmen of the Air Force, whether officer, enlisted, civil servant, or contractor.

Our people are living these values every day. Like the members of the 31st Civil Engineer Squadron and 31st RED HORSE flight from Aviano Air Base and Camp Darby, Italy, who assisted with local disaster relief after earthquakes devastated central Italy. Or the members of the 9th Reconnaissance Wing at Beale AFB, California, who volunteered countless hours to help 9,000 area residents displaced by massive flooding--volunteers who provided victims with food, shelter, and medicine and went the extra step to comfort frightened children with toys, cookies, and a friendly smile. This scene was repeated by the men and women of Grand Forks AFB, North Dakota, who assisted over 25,000 flood victims in that area.

Strong core values bind our people together and demonstrate to the American people that our military forces are worthy of their trust and support. Air Force men and women exhibit integrity, selflessness, and excellence every day, in every corner of the world, working side by side to accomplish their mission. This effective working relationship begins on the first day of basic training and is reinforced by integrating core values into every aspect of our education and training programs.

GENDER-INTEGRATED TRAINING

Every year our Service trains more than 30,000 basic trainees--24 percent of our graduates are women. The Air Force has successfully employed gender-integrated basic training since 1976.

In late 1997, Senator Kassebaum-Baker's advisory committee on gender-integrated training released its report, calling for changes in the structure of basic and operational training. We are currently reviewing our training practices in light of the Kassebaum report, and will forward our recommendations to the Secretary of Defense in March 1998. As part of this effort, we are reevaluating our basic training physical conditioning program to ensure it meets the needs of our airmen and the needs of the Air Force.

LEADERSHIP TRAINING

As an expeditionary force, we must assure the development of "warrior-leaders" who can successfully lead air forces and others with a wide variety of capabilities into a hostile, austere environment. To win in combat, the development of warrior-leaders is every bit as important as fielding the increasingly sophisticated weapon systems necessary to fight a war. The superior technology the United States can bring to bear will only be successful if we have trained, capable leaders to employ it.

As a result, leadership preparation continues to be a cornerstone of our education and training programs. To supplement leadership preparation provided in the various levels of professional military education, additional training is provided by major commands for individuals selected as squadron commanders and by Air University for individuals selected as group or wing commanders. This training covers the everyday aspects of command such as military and civilian personnel management, resource management, legal issues, and complaint processing. Our highest level of leadership training occurs in the Senior Leader Orientation Course where new brigadier generals and civilian equivalents receive training on key issues and on how to be effective representatives of the Air Force.

AIRCREW TRAINING

The Air Force is the lead Service for the Joint Primary Aircraft Training System (JPATS) program. This joint Air Force and Navy program is acquiring 372 JPATS aircraft for the Air Force, with deliveries beginning in 1999. The T-6A *Texan II* will replace the aging T-37s and vastly improve our undergraduate flying primary training capability. The T-6A incorporates several features that are not on current Air Force and Navy trainers. Improvements include: missionized ejection seats, improved birdstrike protection, electronic flight instrumentation and digital cockpit display, pressurized cockpit, and flexibility to accommodate a wide range of male and female pilot candidates. We are also modernizing our T-38 fleet, allowing pilot candidates to train on modern avionics representative of the front line systems they will eventually fly in combat.

To address the growing pilot shortage, we plan to increase our yearly pilot production from 900 pilots per year to 1,100 pilots per year by FY00. We are also examining various alternatives to maximize the utilization of our T-38 fleet. Our increase in pilot production has resulted in a corresponding shortfall

in active duty instructor pilots. Unable to pull more instructors out of mission area cockpits, we have established an associate undergraduate pilot training program to employ Air Force Reserve pilots as instructors. We initiated this program at Columbus AFB, Mississippi, and Vance AFB, Oklahoma, in January 1997. In the 12 months since the first instructor pilot started training, we have hired a total of 43 of the 50 pilots scheduled to participate in the program. Over 30 of these individuals are now fully mission qualified and have flown well over 250 student sorties in support of the specialized undergraduate pilot training mission. Each Reserve instructor pilot will contribute one-third of the number of sorties produced by an active duty instructor pilot. Once the remaining Reserve instructor pilots complete their training, we estimate that they will contribute over 1,600 student sorties per year.

We are rapidly expanding this program to all student pilot training bases and to other training aircraft to include the T-37, T-1, and AT-38 missions. When completed in the summer of 2000, this program will employ over 539 Air Force Reserve pilots (114 full-time and 425 part-time) and produce a sortie rate equivalent to 225 active duty instructor pilots.

We are also pursuing the development of revolutionary new ways to train our operational aircrews. Distributed mission training will use state-of-the-art distributed simulation technology and advanced flight simulators to permit aircrews to remain at their home units while “flying” and training in synthetic battlespace, hooked electronically to other aircrews located at distant airbases. This will improve the quality and availability of training while reducing aircraft operation and maintenance costs, as well as limiting the amount of time our personnel will have to spend away from home.

PROFESSIONAL MILITARY EDUCATION

Educating our airmen to be effective leaders, supervisors, and managers is vital to our continued success. Enlisted Professional Military Education (PME) broadens enlisted members' perspectives and increases their knowledge of military studies, communication skills, leadership, and supervision to prepare them to assume more responsibility. In 1997, we conducted a review of all three levels of our enlisted PME curriculum. We implemented a revised curriculum for the Airman Leadership School in 1997 to eliminate those items better taught at field level and place more emphasis on the profession of arms. We are validating revised curriculums for the Non Commissioned Officer Academy and the Senior Non Commissioned Officer Academy that include subject areas like stress management, suicide prevention, project management, and diversity awareness.

For newly commissioned officers and selected civilians we are developing an Air and Space Basic Course to provide a common frame of reference for understanding and employing aerospace forces. This course will focus on the history, doctrine, strategy, and operational aspects of aerospace power. We will conduct the first class in July 1998.

Follow-on professional military education for our officer corps consists of Squadron Officer School, Intermediate Service School, and Senior Service School. These schools teach the skills necessary for good officership, command, and staff. They also educate senior officers in the strategic employment of aerospace forces to support national security objectives. Our officer professional military education is currently undergoing a complete curriculum review to ensure each level is appropriately tailored to its audience. Additionally, we are pursuing legislation to authorize granting Masters degrees to graduates of Air Command and Staff College and Air War College.

RETAINING QUALITY PEOPLE

Training and educating our people is of little value if we cannot retain them to benefit from their skill and experience. Unfortunately, there are troubling trends in this area. Our first- and second-term reenlistment rates have declined in each of the past two years. Two initiatives we are implementing to reverse these trends include expanding the Selective Reenlistment Bonus (SRB) program to include additional Air Force specialties and increasing SRB bonus rates in specialties where manning and retention rates are low. Additionally, to ensure our first- and second-term airmen have the information they need to make an educated reenlistment decision, supervisors are now required to address the benefits of an Air Force career during semiannual feedback sessions.

For the officer corps, we are concerned that pilot and navigator retention rates have declined each of the past three years. Since FY95, pilot retention has fallen from 87 percent to 71 percent and navigator retention has slipped from 86 percent to 73 percent. Leading indicators are also showing increasingly downward trends. For example, the number of pilots accepting aviator continuation pay is down from 59 percent in FY96 to 33 percent as of mid-January 1998. This is a 48 percent drop from the record high FY94 level of 81 percent. Similarly, pilot separations increased 27 percent between FY96 and FY97 and continue to rise.

One of the major factors that weighs heavily on an individual's decision to stay in or leave the Service is the issue of compensation. The Air Force appreciates Congressional support in 1997 for legislation to restore the original value of the aircrew compensation package. We are closely monitoring aviator retention and are cautiously optimistic about the impact of the new incentive at this point. Compensation is but one of several quality of life initiatives that we are pursuing to make military service more attractive to our personnel. These

initiatives should create positive incentives for all Air Force members and positively impact retention in a variety of career fields.

ENHANCING QUALITY OF LIFE

Quality of Life (QoL) investments have the greatest rate of return in terms of recruiting and retaining quality airmen for our highly technical aerospace missions. Based on feedback from the field, our corporate strategy is to pursue initiatives supporting seven quality of life priorities that satisfy a broad range of needs and expectations: 1) fair and equitable compensation; 2) balanced TEMPO; 3) quality health care; 4) safe, affordable, and adequate housing; 5) a stabilized retirement system; 6) community programs; and 7) expanded educational opportunities.

Fair and Equitable Compensation

Adequate compensation has the most impact on our people's standard of living and remains a key element of our total force QoL agenda. Continued Congressional support for competitive annual pay increases, cost of living allowance increases, and improvements to permanent-change-of-station cost reimbursements are critical to maintaining the value of this important QoL component.

We continue to support the commissary benefit as an important non-pay entitlement upon which our active duty personnel, reserve personnel, and retirees depend. Our people count on savings from commissary purchases to extend already stretched incomes--offsetting lagging pay raises, inflation, and out-of-pocket housing and moving costs. To young enlisted families, elimination of the commissary subsidy would have the same impact as a 9 percent pay cut.

To reduce the out-of-pocket expenses members incur during changes of station, we have approved \$101 million in nonappropriated funding to

construct 420 new Temporary Lodging Facility (TLF) units and repair another 305. Surveys show 88 percent of members needed an average of 14 days in temporary quarters upon arrival at their new duty location. The average off-base lodging cost at the locations where we are building new TLFs is \$70 per day compared to \$24 on base. Building these units will save money for both the members and the Air Force.

Balanced TEMPO

Air Force TEMPO was very high in 1997--supporting numerous major contingency operations and over 180 coalition, allied, and joint exercises around the world. Since 1989, deployment requirements have quadrupled, while permanent forward basing has decreased by 66 percent. Endstrength has decreased by 39 percent since 1986, the beginning of the drawdown.

TEMPO is inextricably linked to both readiness and QoL. Our objective is to maintain a reasonable TEMPO that balances the needs of our contemporary military mission with our people's QoL. We have established 120 days per year as the "desired maximum" number of days individuals should be away from their home station for any reason. Air Force management initiatives that were implemented between FY94 and FY96 (Global Military Force Policy, Global Sourcing, and increased Air Reserve Component participation), resulted in a reduction in the number of weapons systems/skill areas that exceeded our 120-day rate from 13 to 4.

However, despite continued aggressive management of resources, the number of systems/skills above the 120-day mark increased to ten in FY97. We are addressing this increase by taking steps to mitigate each of the factors contributing to high TEMPO--operational deployments, inspections, and exercises.

We have reduced typical aircrew deployments from 90 to 45 days and instituted post-deployment standdowns to give people a break after

deployments of 45 or more days, allowing time to reacquaint with family and return to normalcy. Additionally, in 1998, the length of unit inspections will be reduced by 10 percent with an additional 20 percent reduction in FY99. There is also an effort underway to use real-world deployments to inspect operational readiness as an alternative to using simulated scenarios for the purpose of inspection. This initiative was used to inspect the 366 AEW from Mountain Home AFB, Idaho, in 1997 during its deployment to Bahrain in support of Operation SOUTHERN WATCH. In the short- to mid-term, there are also efforts on the Joint Staff and the Air Staff to reduce exercises. The joint goal is to reduce exercise man-days by 15 percent before FY01, and we anticipate a 10 percent reduction in Air Force exercises by FY02.

On 1 October 1997, we implemented a new system to track TEMPO. The objective is to provide senior leaders with the information they need to identify highly-tasked weapon systems and career fields and, if necessary, take action to reduce their stress. We distributed this new management system to all major commands and military personnel flights with an easy-to-use database that identifies the number of days a person has been on temporary duty in a 12-month period. This database tool allows Air Force commanders, using laptop or desktop computers, to view TEMPO information from the Air Force, major command, base, and unit level by Air Force specialty code, weapon system, or social security number. This system gives commanders a tool they need to help manage the TEMPO of their units.

Our efforts to balance the impact of TEMPO are designed to offset the effects of increased TEMPO levels. We are closely monitoring the situation to determine our ability to sustain this level of activity.

Quality Health Care

We have an obligation to provide high-quality, affordable health care for all of our beneficiaries. The Air Force operates 46 of the Department's 115

hospitals and 33 of its 471 clinics. Each of these facilities is accredited by the Joint Commission on Accreditation of Healthcare Organizations, and meets the same standards as civilian hospitals.

For the past five years, average accreditation scores for military hospitals have exceeded the average civilian scores. Furthermore, 17 percent of Air Force facilities received accreditation with commendation--the highest rating available--compared to 12 percent in the civilian sector.

The TRICARE health plan which combines military and civilian medical capabilities to provide care for active duty and CHAMPUS-eligible individuals is a vital tool to complement Air Force hospitals and clinics. While the TRICARE program has experienced some problems in the early going, it has proven to be a success on the whole. A survey last year of TRICARE Prime enrollees found that 80 percent of TRICARE participants rated their care good to excellent and 9 out of 10 would reenroll. Problems that patients have experienced, such as multiple co-payments for a single episode of care and the portability of Prime enrollment, will be resolved in 1998. Although TRICARE will be fully implemented by Spring 1998, the law prohibits Medicare-eligible retirees from participating in TRICARE. A tri-Service task force is looking into alternatives for their care, as space-available care becomes more limited.

One step in meeting the commitment to care for this group is Medicare Subvention legislation that allows Medicare reimbursement for medical care provided in Department of Defense (DoD) facilities to Medicare-eligible beneficiaries. We strongly support this approach. This is clearly the first step in meeting the health care needs of our seniors. Our Service will be participating in the Congressionally-mandated Medicare Demonstration project for military retirees over age 65. We are also evaluating other medical alternatives for these older retirees, such as the Federal Employees Health Benefits Program and expansion of the National Mail Order Pharmacy Program.

Safe, Affordable, and Adequate Housing

Access to safe, affordable, and adequate housing should be available for every member of our military forces. Last year we completed a dormitory master plan to clearly identify housing requirements for our unaccompanied enlisted force and instituted a phased plan to accomplish it. The first step in this plan is to eliminate the remaining permanent party, central-latrine dormitories.

The second step, which will begin in FY00, is to provide new dormitories to meet our projected 17,000 room deficit. We remain firmly committed to the DoD “1+1” dormitory construction standard for all new permanent party dormitories. This provides for two-person occupancy of an apartment-like unit with a shared bathroom and kitchen and separate, private sleeping quarters. The first unit of this type has been built at McChord AFB, Washington, and is a big hit with our airmen.

The third step calls for the future replacement or conversion of our existing adequate dorms as they wear out. We will not convert or replace these adequate “2+2” dormitories until their facility condition warrants a capital investment. Until these existing units are replaced or reconfigured, we are phasing in a private-room assignment policy that will authorize private rooms for all our unaccompanied airmen by FY02.

The combined strategy of eliminating central-latrine dorms, building new “1+1” dorms to meet our deficit, and implementing a private-room assignment policy goes a long way toward improving the quality of life and retention of our unaccompanied airmen. This commitment to our airmen extends to our men and women stationed overseas, especially in areas such as South Korea where the lack of unaccompanied on-base housing has force protection and readiness implications.

For Air Force families, we must revitalize over 61,000 housing units that have an average age of approximately 35 years. Although the Air Force owns or leases more than 110,000 homes, 41,000 families remain on base housing waiting lists. It appears that privatization may offer an opportunity in this area.

At Lackland AFB, Texas, a privatization project appears feasible to replace 272 housing units and construct an additional 148 units on base. At Robins AFB, Georgia, we are developing a privatization project for 670 units on land currently owned by the Air Force that will be conveyed to a developer to create a new neighborhood immediately off base. Under the privatization approach, housing units are leased by the privatization owner to Air Force members who pay rent and utilities equal to what they receive as basic allowance for their housing.

Privatization provides an opportunity to bring substandard housing units up to standards in significantly less time than it would take under the current system. We will implement this innovative approach where it is economically and financially feasible to do so.

Stabilized Retirement System

Because of the critical link between retirement, retention, and readiness, we continue to support preservation of the current retirement system. The 1980s reforms to military retirement devalued it as a retention tool. Members affected by these reforms are telling us two things about retirement. First, having lost 25 percent of its lifetime value during these reforms, military retirement is no longer our number one retention tool. Second, our members are uncertain that the retirement plan they signed up under will be there when they do reach retirement eligibility. We continue to closely monitor our officer and enlisted retention rates to ascertain what impact military retirement (and other personnel programs) play in our members' decision to stay in or leave the

Service. We believe it is imperative to preserve the current retirement system. The mere suggestion of a change to the military retirement system causes serious concern throughout the force. We need Congressional support to stabilize and preserve the military retirement system. Our readiness depends on it.

Community Programs

Air Force community programs are designed to help active duty members with their dual responsibilities as military members and parents. They provide child care, before- and after-school programs for children 6-12 years of age, youth centers for teens, and family support centers to help individuals cope with family separations.

At the end of FY97, our Service was able to provide 57 percent of the 86,000 needed child care spaces. Facility projects and funding are in place to increase this to 65 percent by 2002. Enhancing and expanding the before- and after-school programs for children 6-12 years of age is a major part of our efforts in this area. These programs offer direct supervision for children who may currently stay at home alone before and after school and during holidays.

Teen issues continue to be on the front burner in all Air Force communities. An Air Force-wide Teen Forum was held to identify issues and begin planning initiatives to improve services. To improve program quality, youth programs are being affiliated with the Boys & Girls Clubs of America, and new or expanded youth centers are under construction at many installations.

Expanded Education Opportunities

A fully-funded tuition assistance program and exploitation of distance learning technologies are two key components of our quality of life-related educational programs. Both of these programs provide exceptional educational opportunity which is consistently cited by our new recruits as the number one

reason they enlist in the Air Force. Our Community College of the Air Force also continues to provide our enlisted force the means to earn job-related Associate degrees. This incentive not only motivates our airmen to achieve educational goals, but also serves to provide technically-proficient personnel for the Air Force's mission requirements. The opportunity provided by the 1996 Veterans Benefits Improvement Act to allow Veterans Educational Assistance Program contributors to convert to the much more advantageous Montgomery GI Bill was well received--61 percent of those eligible in the Air Force made the conversion.

PROMOTING EQUAL OPPORTUNITY

The Air Force gains its strength through diversity. Racial minority representation in our Service has risen from 14 percent in 1975 to 23 percent today. Women now comprise 17 percent of the force--16 percent of the officer corps and 18 percent of the enlisted force. Our people feel that they are being treated fairly and know programs exist to bring complaints of discrimination and harassment to the attention of their supervisors.

We have two such programs that military and civilian personnel may use--the military equal opportunity program and the civilian equal employment opportunity program. We are conducting a top-to-bottom review of both programs to see if they can be managed more efficiently and effectively and to determine if staffing, training, and funding are adequate to carry out their respective responsibilities. The review is expected to be complete in early 1998.

The Air Force equal opportunity program will continue to stress command commitment and accountability, clarity of policy, effective training, and fair complaint handling. Our goal is to promote individual opportunity and professional growth in an environment free from discrimination and harassment.

PREPARING FOR THE 21ST CENTURY-- STRENGTHENING CORE COMPETENCIES

Our people deserve to be equipped with the right tools to accomplish our missions. The Air Force modernization program is designed to enhance the unique capabilities embodied in our specialized core competencies--*Air and Space Superiority, Precision Engagement, Global Attack, Rapid Global Mobility, Information Superiority, and Agile Combat Support*. These competencies provide the rapid, precise, and global response that gives our combatant commanders and the National Command Authorities the necessary options to respond to regional crises.

AIR AND SPACE SUPERIORITY

Air and space superiority is a fundamental requirement for all operational concepts in *Joint Vision 2010* and is a prerequisite to achieving full spectrum dominance. It is essential that US and allied forces, both in-place and those deploying to theater, be protected from enemy air attacks early in the conflict. As potential adversaries acquire more capable fighter aircraft and, importantly, longer-range air-to-air missiles, it will become more difficult for a small expeditionary force to defend friendly airspace effectively and to secure air superiority quickly.

The National Defense Panel pointed out that legacy systems procured today will be at risk in the 2010-2020 time frame. That is precisely why our Service is investing in the leap-ahead capability embodied in the F-22 *Raptor*. Three distinguishing factors: supercruise; stealth; and integrated avionics make the F-22 truly revolutionary. The F-22's ability to engage enemy aircraft before being detected by them will allow our forces to shoot down large numbers of enemy aircraft while minimizing the number of our fighters lost in

air-to-air engagements. This high exchange ratio, coupled with the F-22's ability to operate effectively in the vicinity of surface-to-air missiles, will enable our forces to achieve a dominant air defense posture and air superiority within the early days of a major theater war. The F-22 will enable the United States to dominate the air arena and deny our adversaries sanctuary--giving every member of the joint team the ability to operate free from attack and free to attack. Additionally, in the future, the integrated air-to-ground capability of the F-22 could make it our high-end attack aircraft.

The *Raptor* successfully completed its first flight in September 1997, begins flight testing at Edwards AFB, California, in early 1998, and will enter operational service in 2005. Funding stability for this critical modernization effort is essential for program stability.

In addition to the threat posed by advanced enemy aircraft, the National Defense Panel also recognized the importance of defending key regional coalition partners against enemy missile attack. We are developing the Airborne Laser (ABL) to counter this threat. This truly revolutionary weapon will change the military's concept of defense and open the door to a new era of warfare. Its "speed-of-light" capability to shoot down Theater Ballistic Missiles (TBMs) in their vulnerable, boost-phase portion of flight can deter the use of these weapons by our adversaries by forcing them to face the possibility of their weapons falling back on their territory. This year, the ABL showcased its shooter, sensor, battle management, and communications capabilities as part of a joint multi-layered theater missile defense architecture in the ROVING SANDS 97 wargame. In this simulated scenario, the ABL shot down 16 of 17 targets it engaged and provided missile launch warning, launch and impact point predictions, and trajectory data to the joint force.

The ABL program is on track, meeting all its milestones, and will demonstrate its lethality with an actual TBM shootdown demonstration in

2002. The ABL will reach initial operational capability with three aircraft in FY06 and full operational capability with seven aircraft in FY08.

Space-based assets will enhance the success of the ABL. For example, the Space-Based Infrared System (SBIRS) will provide cueing for the ABL as well as all other missile defense systems. SBIRS will consist of constellations of satellites in high and low orbits and will provide improved detection and warning of strategic and theater missile launches. The SBIRS High component satellites are necessary to replace the current Defense Support Program (DSP) constellation that provides warning of missile attack. The last DSP satellite will be launched in 2003 and a follow-on system is needed to maintain global coverage.

SBIRS High will provide complete coverage of the northern hemisphere and most of the southern hemisphere, providing warning of hostile missile launches, missile tracks through burnout, launch point and initial impact point prediction, and target handover to ground-based radars and the SBIRS Low component. SBIRS High sensors will also gather technical intelligence and perform battlespace characterization and pass this information on to the warfighter in real time.

The SBIRS Low component will acquire and track missiles during the midcourse of their flight. It will track small, cold bodies, such as reentry vehicles, against the deep space background, discriminate warheads from decoys, and pass this information to missile defense systems. The precision tracking of the threat reentry vehicles by SBIRS Low will significantly increase the probability of a successful intercept. SBIRS will complement the F-22 and ABL to enable our forces to dominate air and space as part of achieving full spectrum dominance.

Space-based support is rapidly becoming a prerequisite for successful military operations on the land, sea, and in the air. Integrating space-based

systems into all aspects of its operations is a top Air Force priority. This objective has implications for each of the Air Force core competencies and is the foundation for our Service's continued evolution as an aerospace force. But space-based capabilities can only be made available with reliable, cost-effective spacelift. Toward that end, we are developing the Evolved Expendable Launch Vehicle (EELV).

The EELV will replace the current fleet of launch vehicles with a family of vehicles to provide assured access to space. The EELV will enter operational service with government flights of medium and heavy lift variants scheduled as early as 2002 and 2003 respectively. EELV will significantly improve DoD, civil, and commercial launch operations by reducing costs, shortening timelines, and enabling more launches per year. We have recently settled on a strategy to carry two contractors forward into the engineering and manufacturing development and production phases. This decision was based on a potential private sector market significantly larger than originally envisioned for EELV. The benefits from this new strategy include a more robust industrial base and two sources to provide continued competition into production and is an example of our revolution in business practices.

PRECISION ENGAGEMENT

Today, and for the foreseeable future, successful military operations will depend on the ability to reliably achieve desired effects while limiting casualties and minimizing collateral damage. We are using the power of space-based systems to support a new generation of very accurate munitions that exploit the power of satellite navigation to find their way to within feet of any target. We are also investing in greater numbers of advanced precision weapons capable of killing multiple targets on a single pass, and improving our day, night, and adverse weather precision employment capabilities to enable pinpoint target accuracy.

We are working hard to field advanced munitions that will further enhance the range of our precision engagement capabilities like the inexpensive Joint Direct Attack Munition (JDAM) Global Positioning System guidance kit that converts 1,000 and 2,000 pound general purpose and penetrator warheads into highly accurate, adverse weather weapons with in-flight retargeting capability. Initial JDAM drop test results were impressive, with impacts well within the 13 meter requirement. JDAM low rate initial production began in FY97 and deliveries will start in FY98.

The long range, low observable, conventional, precision guided Joint Air-to-Surface Standoff Missile (JASSM) will enable precision engagement of high value, heavily defended, fixed and relocatable targets. This is another truly revolutionary weapon system at a very affordable price. The decision to proceed to engineering and manufacturing development is scheduled for FY99. The low rate initial production decision is scheduled for FY00.

The Joint Standoff Weapon (JSOW) will permit highly accurate, adverse weather employment against land and sea targets at standoff ranges of 15-40 miles. We will use two variants with submunitions designed to neutralize both soft and heavily armored targets. We will begin buying JSOW soft target variants in FY98 and hard target variants by FY99.

The Sensor Fuzed Weapon (SFW) dispenses cluster munitions which will provide multiple kills per aircraft pass against land combat and support vehicles. Full rate production of baseline SFW began in FY96 and initial operational capability was declared in early FY97. The Air Force initiated Pre-Planned Product Improvement (P3I) development in FY96. SFW P3I expands the weapon's footprint by 50 percent, incorporates a dual mode Laser/Infrared sensor and a multi-purpose combination warhead, and increases kills per pass to 233 percent of the requirement for the current baseline SFW. Production

will begin in FY99. About 3,000 of the 5,000 planned weapons will include P3I improvements.

The Wind Corrected Munition Dispenser (WCMD) guidance tail kit will provide the capability to correct for launch transients and wind effects and give the Air Force a first time capability to deliver area munitions such as Combined Effects Munitions, GATOR, and SFW accurately from medium to high altitude. Full rate production is planned for FY00.

To counter proliferation of chemical and biological weapons, we plan to enhance the counterforce capability of our Conventional Air Launched Cruise Missiles against fixed chemical/biological production and storage facilities. Funds for this effort were made available by OSD as a result of a joint OSD-Interservice review of current capabilities to attack such targets. Elsewhere, we are working on the Agent Defeat Weapon, a capability to neutralize (with low collateral damage) chemical and biological weapons before they are employed. This capability is currently in concept exploration and definition.

The Joint Strike Fighter (JSF) is a precision engagement asset that will replace the aging fleets of Air Force F-16 and A-10 aircraft. The JSF will provide a less expensive multi-role partner for the F-22. The F-22 and JSF are intended to be complementary, not interchangeable. Together they represent a synergistic high-low capability mix. The F-22's ability to gain air dominance by penetrating and suppressing the most lethal ground-based and airborne systems of the next century makes it possible for us to design a multi-role aircraft which is less capable and therefore less costly. This is the same high-low mix principle we utilized with the F-15/F-16 partnership. Without the F-22, the JSF would be hard pressed to perform its mission against current and impending threats with the same effectiveness. The JSF's affordable balance of survivability, lethality, and supportability will bring precision engagement to the future battlespace while simultaneously decreasing life cycle costs.

The JSF program is on track to supply over 2,900 next-generation multi-role strike fighters to the Air Force, Navy, Marines, and the United Kingdom Royal Navy. There are several other interested Allies that may expand and extend the JSF overall quantity. Delivery of the first operational JSF is scheduled for FY08.

Successful precision engagement is as dependent on timely and accurate information as it is on precision weaponry and capable delivery platforms. Rapidly getting this information to our aircrews for mission planning and target study is critical for mission success. Toward that end the Air Force is evaluating systems like the *National Eagle* system.

Housed in a twenty-foot deployable shelter, *National Eagle* receives and processes near-real time imagery from satellites and the Predator UAV and fully integrates it with the Air Force Mission Support System and the *PowerScene* mission visualization system. *National Eagle* provides the route planning and “fly-through” mission visualization capability that enables our pilots to practice their missions in virtual reality at a computer console before strapping into their aircraft for an actual mission. *National Eagle* is a refinement of the technique that was effectively used in Bosnia during Operation DELIBERATE FORCE to increase mission success and avoid unnecessary collateral damage. We will continue to search for similar innovative initiatives to integrate air and space assets to further enhance the effectiveness of aerospace power.

GLOBAL ATTACK

To quickly halt enemy forces in the early phase of a conflict, the US must maintain its unique ability to project power rapidly, precisely, and globally--to quickly find and attack or influence targets worldwide from air and space. Air Force global attack assets are designed to fill this need, responding anywhere in the world in a matter of hours.

Global Power missions illustrate this capability and are quarterly requirements for each Air Combat Command bomb wing. The purpose of these missions is to demonstrate to any potential adversary the capability of US aerospace forces to project power from bases in the continental United States to anywhere in the world within 24 hours. In FY97, 32 global power missions were flown by B-1s, B-2s, and B-52s throughout the world. Missions with durations over 30 hours, taking off and landing at home station, are not uncommon. This greatly increases the options available to the CINCs during crises, while lowering aircrew TEMPO by allowing them to operate from their home stations.

Bomber operations from forward locations provide commanders with the added mass, flexibility, and higher utilization rates critical to the halt phase. 1997 witnessed the first in-theater deployment of bombers with an Aerospace Expeditionary Force when B-1s deployed to Southwest Asia to support extensions to Operation SOUTHERN WATCH.

The B-1 *Lancer* is the Air Force's primary long range conventional delivery system. In October 1997, the Air Force suspended the B-1's active nuclear support role. It remains on schedule for conversion to a conventional role under the multi-phased Conventional Mission Upgrade Program (CMUP).

The B-1 carries three families of cluster bomb weapons, including the anti-armor SFW, making it the first bomber with this critical halt phase capability. In April 1997, the Defensive Systems Upgrade Program, a component of the CMUP, entered into the engineering and manufacturing development acquisition phase. It includes the ALR-56M radar warning receiver for improved situational awareness and a fiber optic towed decoy for radio frequency jamming. Additionally, in July 1997, the B-1 received approval for full rate production of the GPS and communications upgrade portions of the CMUP.

By the second quarter of FY99, we will equip eight B-1s with the JDAM and the interim ALE-50 Towed Decoy System for survivability against radar threats. By FY02, the B-1 will achieve its initial operational capability with the WCMD, JSOW, JASSM, and the full defensive system upgrade to include the Joint Air Force-Navy Integrated Defensive Electronic Countermeasures System.

The B-2 *Spirit* is our multi-role, heavy bomber capable of delivering both conventional and nuclear munitions. Achieving initial operational capability in April 1997, the B-2 brings massive firepower to bear, in a short time, anywhere on the globe. Its low-observable, or “stealth,” characteristics give it the unique ability to penetrate an enemy’s most sophisticated defenses and threaten its most valued and heavily defended targets. The B-2 has the capability to deliver a wide variety of precision and non-precision weapons including the JDAM, GPS Aided Munition, SFW, Cluster Bomb Units, mines, and general purpose munitions ranging from 500 to 2,000 pounds.

The GBU-37, a GPS guided, 4,700 pound, deep penetrating munition was added to the B-2 arsenal in late 1997. This weapon is currently the only all-weather, near-precision “bunker busting “ capability available to warfighting CINCs. B-2 conventional weapons integration will continue to be enhanced with the addition of JSOW in FY99 and JASSM in FY02.

For more than 35 years, the B-52 *Stratofortress* has been the primary strategic heavy bomber force for the United States. The B-52 has the combat proven capability of dropping or launching a significant array of weapons in the US inventory. It is the only Air Force aircraft capable of delivering all of the following precision, standoff weapons: the AGM-129 Advanced Cruise Missile, the AGM-86B Air Launched Cruised Missile, the AGM-84 HARPOON anti-shiping missile, the AGM-86C Conventional Air Launched Cruise Missile, and the AGM-142 missile. Additionally, the B-52 has the capability to integrate future standoff and precision conventional munitions.

Rounding out the Air Force global attack assets are the *Minuteman* and *Peacekeeper* ICBM fleets. Both the *Minuteman* and *Peacekeeper* systems provide rapid, precision strike capability. The *Minuteman* fleet is undergoing modernization programs, including propulsion and guidance replacements, to continue to ensure the fleet remains a reliable and credible deterrent to nuclear attack. The *Peacekeeper* fleet will continue to be a nuclear deterrent until deactivated under the provisions of START II.

RAPID GLOBAL MOBILITY

Rapid global mobility ensures our nation can rapidly respond to the full spectrum of contingencies--from combat operations, to humanitarian relief, to peacekeeping, with the right force, at the right time, and the right place. Air mobility missions include the airlift and/or airdrop of troops, passengers, supplies, and equipment to locations around the globe, as well as air refueling for Air Force, sister Service, and allied aircraft. Air mobility forces also provide worldwide aeromedical evacuation of patients, participate in special operations, and support other national security requirements. Rapid global mobility is the joint team's most reliable combat multiplier.

Airlift and air refueling forces provide tremendous speed and flexibility in deploying, employing, and sustaining America's military forces. Air mobility forces operate as part of a larger joint warfighting team, working closely with air, land, and naval forces to meet operational requirements for the unified commanders.

The C-17 is rapidly becoming the new core airlifter of the Air Force's mobility fleet. Its ability to carry outsize cargo into austere airfields is essential in deploying our forces virtually anywhere on the globe--a capability no other nation in the world has. This capability was recently showcased during CENTRAZBAT 97, a combined force exercise consisting of forces from the US, Kazakhstan, Uzbekistan, Kyrgyzstan, Russia, and Turkey. In this exercise

eight C-17s flew 7,800 miles non-stop from Fort Bragg, North Carolina, to air drop troops and equipment in Central Asia--the longest air drop mission in history.

In 1997, the C-17 supported our forces in Bosnia, Haiti, and the Middle East, while accomplishing numerous global movements on short-notice. From transporting Army rocket launchers from Oklahoma to Korea, to supporting the evacuation of non-combatants from Liberia, to humanitarian relief flights to Central Africa, the C-17 continues to carry the load for the joint force and will provide unparalleled reach well into the new millennium.

Another important aspect of our mobility capability was demonstrated in 1997 by members of the 352nd Special Operations Group and 100th Air Refueling Wing. These forces deployed to Libreville, Gabon, in West Africa, as part of an enabling force to support the Joint Task Force Operation GUARDIAN RETRIEVAL. This operation was initiated to evacuate the estimated 550 American citizens in Zaire to protect them from the violence associated with the civil war there. The airmen joined about 400 soldiers, sailors, and Marines comprising the joint task force ashore in West Africa.

The deployment came just weeks shy of the first anniversary of Operation ASSURED RESPONSE when Air Force Special Operations Forces (SOF) units deployed to Africa to help evacuate more than 2,400 people from Liberia. Our SOF forces maintain the highest tasking rate in the Air Force and it is critical that they are properly equipped to deal with the increasing number of military operations other than war. These operations require long range vertical lift capability presently supplied by MH-53J and MH-60G aircraft.

Our plan to acquire CV-22s for our SOF forces will provide long range, adverse weather, clandestine penetration of medium to high threat environments in politically or militarily denied areas to execute personnel recovery operations, infiltrate, exfiltrate, and resupply SOF forces. The CV-22's

speed, extended range, and survivability will significantly increase the warfighting CINC's ability to conduct operations in denied territory. Air Force Special Operations Command will receive 50 of the tilt-rotor aircraft. The CV-22 is expected to make its maiden flight in 2000. Hurlburt Field, Florida, will receive operational aircraft beginning in 2004.

We are also modernizing our executive fleet by replacing the VC-137 fleet at the 89th Airlift Wing at Andrews AFB, Maryland. The VC-137s will be replaced with four C-32A (Boeing 757) and two C-37A (Gulfstream V) aircraft. All aircraft will be delivered in 1998.

Global Access, Navigation, and Safety (GANS) is an Air Force management initiative established to harmonize requirements and acquisition of several navigation and safety-related programs. The purpose of GANS is threefold: to organize related navigation and safety programs and integrate Air Force efforts through combined Air Staff and Major Command integrated product teams; to serve as a requirements and acquisition management tool; and to establish an avionics acquisition modernization strategy designed to minimize platform downtime and integration costs. The GANS process provides implementation planning for one of the largest of these programs, Global Air Traffic Management (GATM). We will sustain our rapid global mobility core competency by acquiring state-of-the-art GANS systems for our air mobility forces to preserve access to prime global airspace routes in the future.

Additionally, latest technology, commercial ground and air traffic warning systems using digital terrain database displays and GPS have been established as standard equipment for all Air Force passenger capable aircraft. This equipment is to be installed as soon as possible, but not later than 2005, to enhance our ability to safely operate in higher traffic densities of the 21st century.

Modernization of the Active and Reserve Component C-130 airlift fleet is on track. This program consists of modification of our existing C-130s and limited procurement of the C-130J. Programmed modifications are designed to increase reliability, maintainability, combat capability, and safety. Our current plan is to modernize over 350 existing aircraft between FY00 and FY09.

Our Pacer CRAG (Compass, Radar And GPS) avionics upgrade to the KC-135 fleet is also on track. This commercial off-the-shelf modification program will eliminate the need for a navigator on most missions. Recent additions to the Pacer CRAG program include a Traffic Alerting and Collision Avoidance System (TCAS), an Enhanced Ground Proximity Warning System (E-GPWS), a Standby Air Data Indicator, and a Reduced Vertical Separation Minima (RVSM) Compliant Air Data Computer. These systems will serve as the foundation for future GATM modifications and ensure our KC-135 fleet maintains the capabilities necessary to meet wartime requirements.

INFORMATION SUPERIORITY

In today's environment, information superiority is critical to the execution of Air Force core competencies and overall mission success. The essence of information superiority is the ability to collect, control, exploit, and defend information and information systems. These "information operations" are important to the entire range of military operations, from peace to all-out conflict. The Air Force provides information superiority to the nation by executing information operations in air, space, and increasingly, in cyberspace. One of the fundamental benefits of information superiority is effective command and control of our military forces.

We are committed to integrating command and control (C2) into aerospace operations, eliminating duplication of effort, and increasing commonality between C2 systems. To implement and oversee these initiatives, we stood up the Air and Space Command and Control Agency in 1997. This

agency, together with the Air Force Communications and Information Center (the Air Force's center of excellence for communications and information, also established in 1997), will be pivotal in expanding our nation's information edge and enhancing our warfighters' capabilities.

We are aggressively pursuing innovative C2 capabilities to improve Air Force expeditionary operations. For example, in September 1998, we will conduct *Expeditionary Forces Experiment 98* (EFX 98) to demonstrate C2 capability and help focus our C2 operations and investment. EFX 98 will consist of a simulated combat scenario with emphasis on the rapid deployment and employment of an AEF to conduct offensive air operations. It will combine elements of live-fly exercises, modeling and simulation, and advanced technology to demonstrate new operational concepts such as near-real time sensor-to-decision maker-to-shooter capabilities, Joint Force Air Component Commander enroute employment planning, Distributed Air Operations Center concepts, and Agile Combat Support using In-Transit Visibility and Total Asset Visibility. EFX 98 will establish the baseline for a series of advanced warfighting experiments we plan to conduct annually.

One system that is key to meeting the warfighters' command, control, communication, computer, and information (C4I) needs is the Global Command and Control System (GCCS). GCCS is a part of the overall Defense Information Infrastructure Common Operating Environment (DII COE) which affords all the Services interoperability and eases joint operations; it is a DoD integrated C4I system that provides a joint, worldwide classified network to facilitate the dissemination of critical information. We have fielded GCCS at all Major Commands, Numbered Air Forces, and most Wings. GCCS provides a full complement of C2 capabilities such as readiness assessment, crisis action and deliberate planning, intelligence mission support, secure communications,

and a common operational picture. We are migrating Air Force C2 systems to this common operating environment to enhance interoperability.

Effective C2 depends in large part on our ability to accurately identify all of the hostile, friendly, and neutral entities in the battlespace--referred to as Combat Identification (CID). Accurate CID hinges on our ability to effectively process data to build a three-dimensional picture of the battlespace. This in turn permits real-time application of tactical options so weapons can be employed at optimal ranges against the most critical enemy targets. The acquisition of CID systems and development of associated tactics, techniques, and procedures will maximize operational effectiveness, reduce casualties due to fratricide or enemy actions, and move us closer to the goal of full spectrum dominance.

The Airborne Warning and Control System (AWACS) is the linchpin of airborne C2 systems as the airborne surveillance and battle management platform for the Joint Force Commander. We have modernization efforts underway to ensure AWACS remains an effective and survivable airborne C2 platform through 2025.

In 1997, the AWACS Radar System Improvement Program successfully completed its initial operational test and evaluation. This program will greatly increase the detection range of low radar cross section targets, provide improved electronic counter-counter measures, and reduce radar failure time ten-fold. Additionally, the collection of initiatives comprising the Extend Sentry program will reduce maintenance downtime, reduce the number of mission aborts, and increase aircraft availability. The Extend Sentry program is critical to ensure the AWACS will remain available to meet real-world taskings.

Timely, accurate information provides the National Command Authorities and our military commanders with the ability to quickly assess developing crises and respond appropriately. The operations of U-2, Predator, and the RC-

135 RIVET JOINT aircraft around and over Bosnia and Iraq graphically illustrate how the integration of air and space assets has improved the timeliness and accuracy of our information. The U-2 has the ability to deliver digital near-real time information to ground stations in the continental United States, which in turn process it and relay it by satellite to theater commanders around the globe.

These ground stations, known as Contingency Airborne Reconnaissance System (CARS) Deployable Ground Station (DGS) 1 and 2, are located at Langley AFB, Virginia, and Beale AFB, California. They serve as collection and assessment points for the U-2's raw intelligence data. Each DGS consists of two squadrons, an Air Combat Command unit that provides imagery analysis expertise, and an Air Intelligence Agency unit that provides signals intelligence, logistics, and communications expertise. These units determine the capabilities and posture of potential adversaries and provide near-real time intelligence products to deployed forces in Bosnia and Southwest Asia using Mobile Stretch (MOBSTR) communications relay technology.

Deploying a DGS into a theater of operations would require six C-5 Galaxy transports to move approximately 200 tons of equipment and more than 200 people. However, with our "reachback" capability, we achieve the same effect by deploying 30 people with smaller ground stations to collect and relay the U-2's data from the theater of operations to the United States for processing and dissemination.

The U-2's impressive capability is complemented by Unmanned Aerial Vehicles (UAVs). The Predator Medium Altitude Endurance (MAE) UAV has been deployed to Bosnia since March 1996. This versatile system transmits live video feeds to front line commanders via the Joint Broadcast System--furnishing our joint forces with unparalleled situational awareness.

On 1 August 1997, the 15th Reconnaissance Squadron at Indian Springs Air Force Auxiliary Field, Nevada, was activated as the second Air Force Predator MAE UAV squadron. One week later, Predator became the first Advanced Concept Technology Demonstrator (ACTD) to transition to a formal acquisition program under DoD's ACTD initiative. We have overcome several challenges and learned some lessons in making Predator the success it is today. We are using this valuable experience as we work with the high altitude UAV program offices to ensure a smoother operational transition once these programs prove themselves.

In the area of manned reconnaissance, RIVET JOINT continues to be our most flexible and responsive platform. During 1997, RIVET JOINT remained in high demand, providing accurate, timely tactical information to a broad range of users in Bosnia, Southwest Asia, and around the world. In 1997, the first three aircraft of the 14 aircraft RIVET JOINT Fleet were modified with current technology to establish a new baseline configuration. Two additional RIVET JOINT aircraft will be added to the fleet beginning in 1998, helping to alleviate this system's high TEMPO rate. Additionally, we plan to complete most of the reengining program for the RC-135 fleet by the end of the Future Years Defense Program.

Our more specialized RC-135 assets, COMBAT SENT and COBRA BALL, provided critical technical intelligence throughout 1997 to support weapons development efforts, theater force protection, and weapons proliferation assessments.

Surveillance is also crucial to information superiority. The Joint Surveillance Target Attack Radar System (Joint STARS) provides commanders with a set of "eyes" to "see" what the enemy is doing on the ground in all weather, day or night. The Joint STARS combination of moving-target indicators and synthetic aperture radar produces images that enable operators

to pick out individual vehicles in a moving convoy. This capability played an important role in enforcing the Dayton Peace Accords when both of the Bosnian factions could see and understand that their every movement was being monitored.

Over the course of 1997, Joint STARS participated in several exercises where it provided critical situational awareness to commanders and troops. For example, during the HUNTER WARRIOR exercise, the Red Team commander expressed frustration that he was unable to move his forces without detection by friendly forces when Joint STARS was on station. Similarly, the Joint STARS received excellent reviews for its work in the FOAL EAGLE exercise conducted in the Republic of Korea--the largest air base defense exercise in the free world. During the FOAL EAGLE exercise, the Joint STARS significantly increased the situational awareness of battle commanders in South Korea by providing the real-time location of friendly and enemy forces.

Joint STARS also has tremendous potential to assist with real-time targeting of enemy positions by attack aircraft. As an experiment, a Joint STARS mission was flown over Bosnia in which a Hand-held Terminal Unit (HTU) was used to send real-time target designation and other data by burst transmission to F-16 aircraft equipped with the Improved Data Modem. While the HTU is not currently integrated into Joint STARS, this experiment demonstrated the potential capability to pass real-time information from Joint STARS directly into the cockpits of attack aircraft.

Joint STARS, which declared initial operational capability in December 1997, has now successfully deployed to the European, Southwest Asia, and Pacific theaters in four deployments. It continues to demonstrate its benefits as the DoD's only fielded real-time, long range, wide area surveillance and battle management asset. Together, the Joint STARS and the other Air Force

information superiority assets provide the battlespace awareness necessary to conduct today's complex military operations.

We must safeguard our information to prevent our forces from becoming the target of an adversary's information warfare campaign. We have an increasing need to defend information from its point of production to its point of delivery to the battlespace commanders. To aid in the defense of systems and the information they contain, Air Force investigators and counterintelligence personnel rely on the unique capability to detect and counter unauthorized network access afforded by the computer forensic laboratory. Within the laboratory, an impressive media analysis branch is able to dig clues from mountains of information stored in a variety of formats. This capability is complemented by a network intrusion squad capable of tracking intruders through the complex maze of cyberspace.

Our Service was recently designated as executive agent for the new DoD Computer Forensics Laboratory. This laboratory will offer us an opportunity to play an important leadership role in developing techniques to protect key information systems across the DoD. Our other current information operations capabilities include the Automated Security Incident Measurement System, Modeling and Simulation programs, the Information Warfare Battlelab, and the Computer Security Assessment Program.

In the area of offensive information warfare we have a variety of capabilities like those provided by the EC-130H, *Compass Call*. As DoD's only wide-area offensive information warfare platform, *Compass Call* provides disruptive communications jamming and other unique capabilities to support the Joint Force Commander across the spectrum of conflict.

For localized targeting of specific avenues of communication, the EC-130E *Commando Solo* is available to commanders. This weapon system is the mainstay information operations aircraft for peacekeeping and peacemaking

operations and humanitarian efforts which comprise a large percentage of today's military missions. With the capability to control the electronic spectrum of radio, television, and military communication bands in a focused area, the *Commando Solo* aircraft can prepare the battlefield through psychological operations and civil affairs broadcasts. In 1997, the *Commando Solo* supported the UN's Operation JOINT GUARD mission by shutting down anti-SFOR propaganda through radio and TV broadcasts over Bosnia-Herzegovina in support of SFOR operations.

AGILE COMBAT SUPPORT

The success of the joint force ultimately rests on our ability to sustain deployed forces. Agile combat support will enable our rapid, responsive, and flexible forces to become more expeditionary in nature by eliminating the need for massive deployed inventories. Improvements in information and logistics technologies will make this possible.

When combatant commanders require an item, integrated information systems will "reach back" to US locations and "pull" only the resources required. Streamlined depot processes will release materiel in a timely fashion so that time-definite transportation can complete the support cycle by rapidly delivering needed resources directly to the user in the field. Integrated information systems currently being tested provide total asset visibility throughout this process, tracking resources throughout their delivery cycle. Mobility assets equipped with this technology can be tracked in near-real time through the exchange of GPS data, two-way message text, and aircraft cargo information.

We are improving interoperability and commonality of combat support information systems with the Global Combat Support System-Air Force (GCSS-AF) program. GCSS-AF is another component of the DII COE; it is a software

modernization program to provide interoperability and sharing of data between base-level information systems.

Agile combat support will allow commanders to improve the responsiveness, readiness, deployability, and sustainability of their forces. The efficiency and flexibility of agile combat support will enable aerospace forces to engage quickly and decisively and sustain operations as necessary anywhere on the globe.

ENABLING TECHNOLOGIES

Our Service continues to explore and invest in promising technologies that enhance our core competencies and contribute to our vision for the future. Examples include: our development, demonstration, and maturation of the high-power laser technology that was transitioned to the Airborne Laser system; our execution of the Ballistic Missile Defense Organization's Space-Based Laser Research Demonstrator; and our cooperation with NASA to explore the potential of reusable launch vehicle technology for militarily unique applications. Additionally, we continue to investigate a range of new technologies from those intended to enhance the expeditionary capability of our aerospace forces to those designed to enable target identification from space. We feel it is important to explore revolutionary technologies like these as a hedge against the potential threats our nation may face in the future.

Our defense laboratories and test centers are often the birthplace of key technologies. To increase the effectiveness and efficiency of these facilities, we streamlined the Air Force Materiel Command laboratory structure in April 1997 by forming a corporate Air Force Research Laboratory (AFRL). This new organization realigns the former Armstrong Laboratory at Brooks AFB, Texas; Phillips Laboratory at Kirtland AFB, New Mexico; Rome Laboratory at Rome, New York; Wright Laboratory at Wright-Patterson AFB, Ohio; and the Air Force Office of Scientific Research at Bolling AFB, Washington, DC, under a single

AFRL commander headquartered at Wright-Patterson AFB. The AFRL will likely play a major role in harnessing emerging revolutionary technologies that will transform the way we employ military forces in the future.

REVOLUTION IN MILITARY AFFAIRS

A revolution in military affairs (RMA) is said to occur when the innovative application of new technologies, combined with dramatic changes in operational and organizational concepts, fundamentally alters the character and conduct of military operations. The Air Force exists today because of an earlier RMA that combined the new technology of manned flight with innovative operational concepts to create a military force with a global perspective.

Our Service has evolved over the years by leveraging leap-ahead technology and developing the appropriate operational and organizational structures to employ that technology. We are committed to the research, testing, and evaluation of promising new technologies that may lead to the next RMA. Stealth, supercruise, the Airborne Laser, precision guided munitions, Joint STARS, UAVs, integrated information systems, and space-based assets are all examples of leading edge technologies that are changing the way we conduct military operations.

We are exploring the implications of leap-ahead capabilities in such areas as information operations, space operations, and directed energy to ensure we are postured to exploit the next RMA to build the aerospace capabilities necessary to protect America's security interests well into the 21st century.

IMPROVING EFFICIENCY

Sustaining and strengthening our core competencies will depend on getting the most out of limited resources. We are downsizing personnel and taking other actions to streamline operations and increase efficiency in all areas to help fund our modernization program. We are looking to innovation and revolutionary business practices to improve our operations and reduce costs.

INNOVATION

Innovation is critical to our Service's continued success. It is essential that we aggressively look ahead and seek new ways to employ aerospace power that will enable us to respond quickly to new strategic requirements and take advantage of new technological opportunities.

BATTLELABS

One of the major engines for operational innovation is the Air Force battlelab concept. Battlelabs are small, focused, and rely on field ingenuity to identify creative operational and logistics concepts for advancing the Air Force's core competencies in joint warfare. The Air Force established six Battlelabs in July 1997 to identify innovative ideas: Aerospace Expeditionary Force, Command and Control Battle Management, Unmanned Air Vehicle, Space, Force Protection, and Information Warfare. Successfully demonstrated battlelab concepts will be introduced to the CINCs and their components through exercises and wargaming, and via the newly established Service and joint experimental organizations. New concepts adopted by the Air Force may prompt revisions to Air Force organization, doctrine, training, requirements, or acquisition to enhance the Air Force's ability to meet future challenges.

MODELING AND SIMULATION

Modeling and Simulation (M&S) technologies are an array of computer and software tools for creating and interacting with artificial representations of reality. We have always used modeling and simulation, but advances in computer technology have enabled simulations that are highly detailed, increasingly realistic, and more affordable. Our challenge is to develop models and simulations that more accurately capture the contributions of aerospace power on the modern battlefield.

We envision a “joint synthetic battlespace” that uses a mix of live participants, human-in-the-loop virtual simulators, and computer-generated constructive simulations to organize, train, and equip our forces. To realize this vision, we are actively supporting the development of joint, interoperable, and reusable models and simulations. Specific examples include the Joint Warfare Simulation (JWARS), the Joint Simulation System (JSIMS), and the Air Force-directed Joint Modeling and Simulation System (JMASS).

JWARS is intended for joint campaign analysis and is being directed by the Deputy Secretary of Defense. JSIMS focuses on the operational level of war and will develop and deliver an M&S system capable of joint battlestaff training by 2000. JMASS provides a common environment focused on detailed tactical modeling for requirements development, acquisition, and testing. When these efforts are complete, we will be able to replace an aging suite of legacy models and simulations to more accurately simulate modern aerospace power.

WARGAMING

Wargames are invaluable tools with which to explore innovative ways to employ military forces. Our Service is sponsoring a series of *Global Engagement* wargames with the support of our sister Services to better understand the contribution of air and space forces to the Joint Force Commander.

We initiated this series in 1996 with *Strategic Force 96* and followed it up last year with *Global Engagement 97* (GE 97). GE 97 was enhanced by the addition of a seminar-based policy pregame where a select group of players, representing many principal advisors to the National Command Authorities, explored the implications of increased space and information capabilities on national policies and international treaties.

Global Engagement 98 (GE 98) will also include a policy-level pregame to be held near Washington, DC, in June 1998. The operational game will be held the following November at Maxwell AFB, Alabama. GE 98 will explore the transition of forces from a small scale contingency to a major theater war in the 2008-2009 timeframe. Scenarios will challenge current CINCs' staffs to test and evaluate emerging concepts of operations against viable threats and plausible enemy actions. Key aspects will include the employment of an AEF and the application of a rapid halt of advancing enemy forces to limit the conflict and avoid attrition warfare.

REVOLUTION IN BUSINESS AFFAIRS

In addition to operational innovation, we must adopt innovative, modern commercial business practices to free up precious resources for modernization. We must remove redundancy; use competition to improve quality and reduce costs; and reduce support structures both to free up resources and to focus on core competencies.

We are capitalizing on the revolution in business affairs by moving away from traditional means of doing business in acquiring and supporting our forces. We have instituted an aggressive series of reforms in this regard that extend across the range of our activities.

STRATEGIC BUSINESS PLANNING

Sustaining the current force while simultaneously investing in the systems necessary for operations in the 21st century is a significant challenge in today's fiscally constrained environment. Our key Air Force leaders responsible for accomplishing and supporting acquisition and sustainment have joined together to embark on a shared vision and commitment toward a strategic business plan that moves the acquisition and sustainment communities toward better business practices and continuous process improvement. The goal is to reduce costs without sacrificing mission capability.

PARTNERSHIP WITH INDUSTRY

In June 1997, our senior leaders in acquisition, requirements, and planning and programming signed a memorandum encouraging Air Force members to communicate more openly with industry to promote a better understanding of our requirements in terms of mission and affordability issues. The intent is to promote innovative and more affordable business solutions. This new partnership is already showing progress in the form of acquisition

reform, commercial off-the-shelf acquisitions, lean logistics, and competition and privatization.

ACQUISITION REFORM

We are changing the culture of acquisition. The emphasis is to acquire all products used by the Air Force “better, cheaper, faster” and in a “smoother” more streamlined, well understood process. Virtually every new acquisition program is taking advantage of commercial practices by altering its strategy toward commercial specifications and standards, privatization, competition, commercial off-the-shelf technology, and contractor system responsibility. Through our Lightning Bolt initiatives in streamlining, teaming, and innovative acquisition strategies, we have realized \$7.1 billion in savings from previously budgeted funds and \$11.8 billion in cost avoidance. Newer efforts focus on continuous process improvement and establishing strategic steps to ensure that acquisition reform becomes the norm. To accomplish these objectives, we will continue to advance the professional development of our acquisition workforce by providing quality continuing education and training.

COMMERCIAL OFF-THE-SHELF (COTS) PRODUCTS

Using commercial and non-developmental items is a key factor in achieving the needed economy of Air Force resources. Our focus is on increasing the use of current commercial non-developmental products, processes, and practices while improving the public-private sector business environment to enable a greater use of COTS. Some initiatives include: the conversion of 17 percent of our military product specifications to commercial item descriptions or non-government standards; the establishment of a market research working group to define commercial market research techniques that reveal the best commercially available items to insert into military systems; and the preparation of a draft COTS Handbook to aid in identifying and procuring commercial items.

LEAN LOGISTICS

Lean logistics includes a number of complementary initiatives designed to improve the capabilities of operational units by integrating and applying state-of-the-art business practices across all logistics functions and processes. For example, we have implemented a new method to compute base and depot stock levels which have reduced expected backorders by 17 percent, saving \$70 million in depot repair dollars and eliminating \$60 million in unfunded repair requirements. We have also instituted an automated method to prioritize depot repair and distribution actions to optimize fleet aircraft daily availability.

The objective is to maximize operational capability by using high-velocity, time-definite supply and delivery processes in lieu of large inventories to manage mission and logistics uncertainty. This results in shorter cycle times, reduced inventories and costs, and a smaller mobility footprint, which are critical to achieve Air Force agile combat support objectives.

COMPETITION AND PRIVATIZATION

We are taking a long-term approach to competition and privatization. This entails charting a strategic path for us—now and in the long run—to make the most effective use of private sector capabilities while maintaining or improving our readiness and quality. Innovative solutions, improved performance, and increased savings should result from the increased competition inherent in the OMB A-76 cost comparison process and the increased role of the private sector. With no growth planned for total obligation authority, the savings accrued from competition and privatization will be key for future modernization. Our competition and privatization initiatives are designed to preserve “tooth,” streamline “tail,” and support modernization.

We are pursuing dual and joint-use initiatives for workloads with the private sector to use more efficiently the existing industrial capacity at the

three remaining Air Logistics Centers that remain after BRAC 95. For the workloads not required to support core capabilities at McClellan Air Logistics Center, California, and San Antonio Air Logistics Center, at Kelly AFB, Texas, we are continuing with public-private competitions. The results of the first of the public-private competitions, the C-5 Programmed Depot Maintenance at Kelly AFB, Texas, were announced in 1997. Warner Robins Air Logistics Center in Georgia won this competition with an expected savings of \$190.2 million over the next seven years. Currently, two additional public-private competitions are planned--one for consolidated depot maintenance workloads at McClellan AFB, California, and the second for propulsion workloads at Kelly AFB, Texas. These competitions should be completed in 1998.

In the area of privatization, we are pursuing initiatives in housing and utilities. We are using privatization to upgrade, improve, and replace substandard family housing and eliminate our 14,000 unit deficit. Of the 110,000 housing units in the Air Force-wide inventory, 58,000 require upgrade, improvement, or replacement. Seven projects are currently proceeding through the privatization process with more anticipated.

We are also moving forward with the privatization of base utilities in response to the Secretary of Defense's Defense Reform Initiative Decision. The first privatization project in this area will be awarded in July 1998 for the electrical distribution at Youngstown Air Reserve Base, Ohio. Under the current execution rules, we anticipate conversion of at least 175 water, wastewater, electrical, and natural gas systems.

FINANCIAL REFORM

We continue our efforts to improve financial management systems and practices. We need better financial management in order to provide our commanders with high-quality financial information, eliminate financial irregularities that damage public confidence, and comply with the law.

Improving financial management requires several key steps. Compliance with the Government Performance and Results Act (GPRA) is one of them. GPRA is important to financial management because it mandates the creation of output measures that can be used in financial reports and related to financial data. During the past year, we have supported OSD efforts to develop output measures and comply with other requirements of GPRA. We have also incorporated some GPRA output measures into our financial statements required by the Chief Financial Officers (CFO) Act. We are experimenting with activity-based costing, training our people on its use, and assisting in studies. Several of our commands are experimenting with new approaches to capturing the cost of ownership in order to identify areas to reduce operating costs and to help decision makers determine ways to reduce costs.

We are also improving our CFO financial statements. These statements are publicly available and provide us an opportunity to demonstrate that we are good stewards of public funds. We have achieved relatively clean audit opinions on our military and civilian pay accounts and improved the information related to contingent liabilities. Now we are focused on making the statements more useful to commanders and seeking early implementation of some new statements required by the Federal Accounting Standards Advisory Board.

Finally, we have undertaken an aggressive effort to improve our financial systems in order to provide better information to our commanders and comply with the CFO Act. In the near term, this effort involves modifying existing

systems to provide better cost data and deploying already-developed systems (such as our Automated Business Services System) that can reduce errors in financial data. In the longer run, we must replace most of our existing systems. In most cases, we will choose the best-of-breed from among all service systems and modify the winner to comply with the CFO Act and provide adequate cost data. During the last year, we have made substantial progress on several systems efforts including one to replace the existing financial systems at Air Force depots with a modified version of a system in operation at Navy aircraft depots.

ENVIRONMENTAL RESTORATION AND COMPLIANCE

Environmental compliance, restoration, and conservation are essential to ensure the Air Force has continued access to ranges, airspace, and installations. Stable funding allowed the environmental restoration program to maintain its 1997 cleanup schedule at all contaminated sites. The firm commitment to know and obey environmental laws and regulations has resulted in a dramatic reduction in the number of open enforcement actions against the Air Force from 263 in 1992 to only 16 in 1997.

In May 1997, the Air Force received 4 out of 14 White House Closing the Circle Awards which recognize people and groups for leadership in pollution prevention. The winners were: the Space and Missile Systems Center, Environmental Management Branch, Los Angeles AFB, California, for improved launch rocket systems; the 375th Civil Engineering Squadron, Scott AFB, Illinois, for its recycling program; the Environmental Management Directorate, Ogden Air Logistics Center, Hill AFB, Utah, for waste prevention; and Headquarters Air Combat Command, Langley AFB, Virginia, for its global environmental outreach program. Additionally, the Secretary of the Interior characterized Eglin AFB, Florida, as the best protected, best managed property that he had seen anywhere in the world. These examples represent our

commitment to protect America's natural resources as we execute our missions.

Partnerships with governmental and non-governmental organizations are fostering biodiversity and integrated ecosystem management at many installations. We are working closely with the Environmental Protection Agency (EPA) and state partners to seek common sense ways to achieve common goals. In November 1997, we signed an agreement at Vandenberg AFB, California, with the EPA and the Santa Barbara County Air Pollution Control District to reduce environmental program costs and apply savings directly to reducing pollution from the base. Vandenberg AFB was the first DoD installation to sign such an agreement with the EPA. We plan to direct environmental compliance funds into water conservation and air and water pollution projects. We will use the savings to purchase and operate cleaner operating boilers and equipment for the base's power station. The result will be less money spent on administration and more invested in improving air quality. The Deputy Undersecretary of Defense for Environmental Security cited Vandenberg as the model for this type of partnership. Environmental investment agreements are an important cooperative step toward sustaining both community and Air Force operations.

BASE TRANSFERS AND REALIGNMENTS

We continue to work with the communities impacted by base closure/realignment to put the property and facilities into economic reuse. For example, Pease AFB, New Hampshire, is now Pease International Tradeport, employing 1,219 people at a brewery, a consular center, an airfield, and a steel manufacturer, among others--where only 400 civilians were employed when the base was active.

In 1997, we completed Economic Development Conveyances (EDCs) for property at six closure/realignment bases. Most notably, we signed an EDC

with the Greater Kelly Development Corporation for Kelly AFB, Texas, just two years after the base was announced for realignment. We have also reached final agreement on the terms of an EDC with the County of Sacramento and are working very closely to complete the documentation required to facilitate the transfer of McClellan AFB, California, from the Air Force to the County.

OTHER COST CUTTING INITIATIVES

Additional ongoing cost cutting initiatives implemented or investigated in 1997 include: 1) replacing government bills of lading with commercial bills of lading for air express cargo shipments; 2) using commercial express carriers for small arms and ammunition shipments; 3) increasing functionality between Air Force and commercial carrier transportation data and software; 4) using express carriers to ship classified material; 5) discontinuing volume printing of regulations and instructions; and 6) reengineering distribution of publications via electronic media such as the internet and CD-ROM.

CONCLUSION

America is an aerospace nation and its aerospace forces are an essential element of our nation's military capability. They possess the flexibility to fight across the spectrum of conflict anywhere on the globe, with the speed and range necessary to halt aggression in its tracks.

America's Air Force will remain a preeminent tool of US military power with rapid global ranging forces empowered with stealth and precision weapons. We will continue to sponsor research and development to exploit the full spectrum of aerospace technology and continue to assist all the Services' transition to effective exploitation of our space assets. Finally, we will remain a

key enabler of US land and sea forces by ensuring air dominance, and through robust airlift, air refueling, and space support.

The Air Force has come a long way in the past five decades and has an exciting journey ahead. We are laying the groundwork for that future today as we execute our contemporary military mission, shape our Service for the future, and develop the airmen that will lead us in the 21st century. This is a journey that will take us into new, uncharted territory. And it is one that will benefit every member of the joint warfighting team.